

**Spitz and Fisher's  
MEDICOLEGAL INVESTIGATION  
OF DEATH**



“The search for truth is the essence of forensic pathology. This truth forms an essential link between the enforcement of law and the protection of the public in the administration of justice.” This illustration shows a sculpture by Una Hanbury, located in the lobby of Maryland’s Medical Examiner’s Building in Baltimore. The guardian figure on the left represents law. Next to it the doctor holds up the lamp of knowledge towards the symbolic figure of justice. Justice is interpreted in its aspect of love. The general public is suggested by the group of figures on the right. An inscription underneath the sculpture reads, “Wherever the art of medicine is practiced there is also a love of humanity.” (Hippocrates)

Spitz and Fisher's  
**MEDICOLEGAL INVESTIGATION  
OF DEATH**

Guidelines for the Application of Pathology to  
Crime Investigation

FOURTH EDITION

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*To my father  
Siegfried Spitz, M.D.  
my first and foremost teacher  
and to  
my mother  
Anna Spitz, M.D.  
who relentlessly showed me the way.*

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## FOREWORD

“**M**ORDRE WOL OUT,” Chaucer’s Prioress tells us. But those who work in homicide investigation, forensic pathology, and criminal law know better. The true manner of death which may have been murder is not determined in tens of thousands of cases annually in our violent land. The cost to the nation in truth, justice, health, and safety is enormous.

Had Hamlet put aside indecision, sentimentality, emotion, the wan grief spent on the skull of the jester of his youth “Alas, poor Yorick! I knew him, Horatio” and obtained an autopsy on his dead father, the King of Denmark, Shakespeare’s play might have turned from tragical to historical. Surely, we now see how our failures can affect history itself. The violent death of a President will always cause the deepest fears and suspicions. There will always be the allegation of gunfire from a grassy knoll.

We can determine the truth, and medical science must play a major role. The coeditor of this important volume was one of four professionals I called on as Attorney General, to review the autopsy photos and x-rays of our beloved President who looked “forward to the day when America would no longer be afraid of grace and beauty.” In a time of profound doubt and international concern, with the highest integrity, self-discipline, and professional skill, Dr. Fisher contributed to those most reassuring phenomena, facts linked together pointing to truth.

How many men in America can qualify for such a task? That this is the first volume in twenty-five years dealing directly and effectively with the subject of medicolegal investigation of death tells us that our neglect here is enormous. The deaths of John F. Kennedy, Medgar Evers, Malcolm X, Martin Luther King, Jr., Robert Kennedy, and Whitney Young, Jr., show how our inadequacy can alter our destiny.

About 4:45 A.M., on December 4, 1969, two young Black Panthers, Fred Hampton and Mark Clark, were killed by gunfire in the city of Chicago. The shooting occurred during the course of a police raid on Panther headquarters. There followed an official inquest, a protest inquest, three autopsies, and three grand jury investigations. Each of the autopsies was performed under conditions in a manner or reported in a way that added to speculation over the real cause of death.

A community has been left in profound doubt as to the identity of the guns from which the bullets causing death were fired, even the direction of entry and number of shots. Were the deaths accidental? Were police justified in this use of deadly force? Were the dead murdered by the police? Was Fred Hampton drugged at the time of death? That over five thousand people attended his funeral indicates the impact of our failure to establish the truth. The resulting division in the community will affect the quality of life there and, through those who live there, elsewhere, for a generation or more.

Perhaps many pathologists avoid medicolegal investigation of death because its contribution to life is not clear and the happy side of the docket is with the life savers. A study of such chapters as “Investigation of Deaths from Drug Abuse,” “Forensic Aspects of Alcohol,” and “Aircraft Crash Investigation” immediately demonstrates the great importance of this field in life saving and social problem solving. Indeed, few in the medical profession will be more involved in the action and passion of our times than those who seek to find and demonstrate these medical facts. We can foresee the risks of willful destruction of crowded airplanes and the meaning to mass urban technological society.

With a hundred new dangerous drugs to be created by chemical science in the next five years, with a youth culture in an age of anxiety approaching incoherence, with grossly inadequate preventive research, it often will be the autopsy that tells us of the new synthetic chemicals threatening life. With this knowledge, society can endeavor to cope with one of its most difficult problems.

There are few crueller injustices directly inflicted on an individual by government than conviction of a crime one did not commit. Important chapters such as “Sudden and Unexpected Death from Natural Causes in Adults,” “Trauma and Disease,” and “Injury by Gunfire” show us how easy it is to misjudge the cause of death where circumstances are suspicious. It is of the utmost importance to the individual, to society, to truth, justice, and safety that we find the facts concerning death.

Because of its pathos, we too often ignore the truths disclosed in Chapter XVIII, “Investigations of Death in Childhood—The Battered Child.” How many of our most violent criminals were the subject of physical abuse as children? Forensic pathology can give us some indication. It is important that we know. The national attitude toward violent crime could be dramatically changed by this truth.

Few professionals create greater despondency about the goodness of man and the worth of life than the practice of criminal law. Not many human documents are more pessimistic than Clarence Darrow’s autobiography. Few activities tend to diminish an appreciation of life more than forensic pathology as generally practiced. Neither should be. The criminal lawyer seeks justice—the forensic pathologist, truth. Noble causes. If both will abandon rhetoric, ancient dogma and fictive contentions in favor of finding and presenting fact, which is the teaching of this text, their proper purposes will be justified. Practitioners will then enjoy the satisfaction of helping people.

We must have the courage, indeed the ardent desire, to know the causes of death. We cannot let the *corpus delicti* diminish our capacity for joy. We should not faint at the photos here. They are true, and while all truth may not seem beauty, all truth can strengthen our humanity. Then, however irresolute, we will find the compassion like Hamlet to hold in our hands the skull of a beloved friend, look on it and say “Here hung those lips that I have kissed I know not how oft.” The great and constant need of those who investigate

homicide and practice forensic pathology or criminal law is a warm humanism. A people who will not face death cannot revere life.

But these are mere musings. Study this work.

RAMSEY CLARK  
Former Attorney General  
of the United States  
Washington, D.C.  
14 July 1972



## PREFACE TO THE FOURTH EDITION

It is with great pleasure that I present this fourth edition of *Medicolegal Investigation of Death* and introduce my son Daniel as Co-editor. I am thrilled that he decided to follow in my footsteps. After working several years in Florida at the Dade and Hillsborough Counties Medical Examiner's Offices, Dan has now joined me in Michigan. His relocation enables us to exchange ideas, discuss cases and work together.

This book was first published in 1972 with Russell Fisher, then Chief Medical Examiner of Maryland. Russ was a pioneer who early on recognized the importance of teaching, research and publication in forensic pathology, if this discipline was to withstand the challenges of time. Russ died in 1987, but left an indelible mark in these pages. This is the reason why his name is and will be on the cover.

*Medicolegal Investigation of Death* has been applauded since its inception, primarily because of its simple style, avoidance of technical terminology and the numerous illustrations it contains. The book was meant for pathologists, pathology residents, coroners, and all those who have an interest in the recognition and interpretation of wound patterns, and mechanisms of injury, including prosecuting and criminal defense attorneys, attorneys engaged in civil litigation, detectives, investigators, forensic nurses and others.

*Medicolegal Investigation of Death* is a textbook in forensic pathology. It has become a tradition that this book is re-written, updated, and expanded every 10 years or so. The present version has been completely redone. Eleven new chapters and sections, an overall updated and expanded text, hundreds of new illustrations and many new contributors make this a totally new book. I want to acknowledge my profound gratitude to all contributors and welcome the new authors.

The illustrations are still in black and white and not only to reduce cost. Color evokes emotions. Black and white is more neutral. For an astute observer, the lack of color will not be significant.

The popularity of shows depicting medical legal death investigation such as, Quincy in the 1980s, and recently *CSI*, *Crossing Jordan*, and *Court TV*, to name but a few, have brought the world of forensic science into everyone's living room. These shows have caused the general public to become aware and intrigued, while raising expectations of what may be derived from a post-mortem examination.

Every piece of the puzzle plays a role, from the observations recorded by the police officer at the scene, EMS workers, nurses and physicians in the ER, to the forensic pathologist in the autopsy room. It is therefore important that each understand their role and the significance of their notes when reconstructing an event.

Such manpower must realize that their notes in patients records may well become evidence in later legal proceedings. Thus, what were once mere



words lost in reams of paper are now subject to scrutiny and cross-examination. Diagnoses are no longer buried with the patient's demise and clinical forensic medicine where physicians are called upon as experts to testify in courts of law has grown and prospered far beyond training in the field.

This book hopes to fill the void and its' text has been adapted to a broader readership.

W.U.S.

## PREFACE TO THE THIRD EDITION

*Medicolegal Investigation of Death* has recently celebrated its twentieth year of publication. When Russ Fisher and I were compiling the first edition, back in 1970, we were aware of a need for such a book. Ten years later, widespread demand required a second, expanded edition. Since that time, frequent queries and concerns of attorneys, investigators, pathologists and others interested in medicolegal investigation, coupled with recent developments, prompted a third edition, not only to keep abreast of the present state of the art, but perhaps, more importantly, to deal with areas not addressed in previous editions. Some of these areas are not new, but their absence in the text was obviously significant.

To those who have stimulated me by their inquiries and prompted this third, expanded edition of this book, I wish to extend my heartfelt gratitude for keeping the fire alive.

The present text is profusely illustrated, with many new photographs and added diagrams and sketches to show mechanisms of injury. Most of the old pictures have been retained because it was considered senseless to replace classic illustrations only for the purpose of novelty.

The book has largely kept its simplistic and practical approach, avoiding technical terminology where possible, in compliance with its aim of addressing not only physicians but all those who are engaged in the study of injury patterns and the practice of pathology as it relates to the law.

Unfortunately, since the last edition of this book, three prominent contributors, leaders in the field of forensic pathology and friends, are no longer with us, Doctor James T. Weston, Doctor Russell S. Fisher, and Doctor Richard Lindenberg. Their spirits live on in these pages.

A number of new contributors bring fresh ideas and expertise to this volume, and I wish to extend my sincere thanks to them for their indispensable effort.

Lastly, I wish to indicate my debt of gratitude to Diane Lucke for her tireless efforts in compiling and coordinating this entire manuscript. Without such help this book could not have been completed.

W.U.S.



## PREFACE TO THE SECOND EDITION

WHEN THE FIRST EDITION of this text was published in 1973, we intended that it would fill an existing void for an up-to-date account of the current state of knowledge of death investigation. The need for a second printing three years later supported our original belief that such a publication did indeed meet a demand. Rather than continue with a third printing, we felt that it would be appropriate at this time to undertake a complete revision of the text and to include new developments, including primarily a considerable volume of material that had been previously omitted.

Consequently, many additions and alterations were made to nearly all of the chapters. New sections on sudden infant death syndrome and chemical considerations associated with postmortem changes were included. A new chapter dealing with methodology and interpretation of toxicological procedures was added. Furthermore, a shortcoming of the previous edition was corrected by devoting space to preparation of a medicolegal autopsy report and formulation of a medicolegal opinion, as have been found to be advantageous in the author's own experience.

Significantly more space was allotted to illustrations. We were almost tempted to include color, but in the interest of lower cost, photographs were again limited to black and white, although the emphasis on quality was continued.

In conformity with the first edition, an attempt was made to maintain the practical character of the book, and where possible, technical terminology was avoided in the interest of easier understanding for a wider spectrum of readers.

It is the editors' pleasure to acknowledge the assistance received from so many colleagues, pathologists, police officers and attorneys, who contributed by their questions and suggestions. As previously, a great debt of gratitude is owed to Mrs. Hannelore Russell-Wood (Schmidt-Orndorff) for assistance with the editorial work, preparation of the index and collating of the entire manuscript. Elaine Sacra, research assistant at the Wayne County Medical Examiner's Office, helped transform a raw manuscript into a coordinated text, and Nancy Whayne prepared additional drawings. Special thanks are due to our photographers, Lester Walter and Anna Faulkner, for hours of expert labor spent in providing illustrations for the new material in this edition.

W.U.S.  
R.S.F.



## PREFACE TO THE FIRST EDITION

WHENEVER A NEW TEXTBOOK is to be written three basic questions should be answered by the authors: Why, who needs it? Is it needed now? Why should the authors in question, rather than others, undertake the work?

In the last thirty years there has been increasing sophistication in the training of police officers assigned to homicide investigation. To a significant degree this has been due to the philosophy developed at the Harvard Medical School in the late 1940s of teaching homicide investigators the nature of the medical aspects of injuries. This has led to the development of a sizeable corps of highly expert individuals in this field. The need for this type of information has also been greatly emphasized by the fact that throughout a large part of the United States the medical investigation of death at the scene is woefully inadequate, conducted by untrained and unskilled coroners who are frequently nonphysicians. No new textbook oriented to the homicide investigator or the novice forensic pathologist has appeared in the last two and one-half decades. It is our aim to meet the need by presenting, in readable style, an authoritative text embracing all aspects of the pathology of trauma as it is witnessed daily by law enforcement officers, interpreted by pathologists of varying experience in forensic pathology and finally used by attorneys involved in the prosecution and defense in criminal cases, as well as by those engaged in civil litigation.

Since the text is addressed to a wide range of professional disciplines, some of the chapters are inevitably directed more towards readers with medical backgrounds, whereas others are suited for general understanding. Nevertheless, the large number of illustrations and diagrams will, we hope, render the text comprehensible to all who are interested in the interpretation of forensic pathologic findings.

As it has been noted above, no up-to-date textbook covering the material contained herein is currently available. While working in the Maryland Medical Examiner's Office and its partner in teaching and research, the Maryland Medical-Legal Foundation, we have accumulated a large volume of material upon which to base the text. This material and experience also serve to answer the question: Why us? We have been concerned not only with the day-to-day investigation of sudden and violent deaths in a statewide medical examiner's system but also with teaching in medical and law schools in Baltimore and elsewhere throughout the country as well as with training of young pathologists who wish to become expert in the field. Furthermore, we have been conducting the *Frances G. Lee Seminars in Homicide Investigation* for state and other police officers for many years. It is our hope that our experience and those of our coauthors will make a significant contribution to the improvement of the investigation of sudden and violent death, the prosecu-

tion and defense of those related to such events, and the protection of the public welfare.

W.U.S.  
R.S.F.

## ACKNOWLEDGMENTS

My sincere gratitude, as editor of this book, goes to Diane Lucke, my assistant and office manager, who has been with me 32 years. Her tireless perseverance in preparing the manuscript, often providing valuable advice, sorting the illustrations, compiling the index, proofreading and much of the work usually done by the editor, deserve special recognition. Without Diane's help, this book would not have seen the light of day.

David Woodford, Forensic Manager of the Michigan State Police Crime Laboratory in Sterling Heights merits more than just thanks for his expertise, availability to consult at all times and obtaining and confirming information on so many different topics. Indeed, Dave is not only a colleague but a dear friend. Unfortunately on March 9, 2005, while this book was in print, we lost him.

Many of the drawings and sketches were prepared by William Loechel, retired director of Medical Illustrations at Wayne State University, School of Medicine. Bill made work fun. His keen knowledge of anatomy resulted in renditions with a perfection that only Bill could have achieved. For this, my utmost gratitude to Bill.

A special thanks also, to one of the leading Evidence Photographers in the Detroit area, Edward Gostomski of the Robert J. Anderson Company for preparing a large number of the photographs in this book and his expert advise in regards to the photography chapters.

Cameron L. Marshall, Charleston, South Carolina, formerly Solicitor of the Ninth Judicial Circuit, now in private practice, provided case information and numerous hours of stimulating and delightful discussion.

Last but not least, I am deeply moved by all those unnamed individuals who provided case material, advice and encouragement in the course of preparation of the manuscript. Many thanks to them as well.

W.U.S.





## ACKNOWLEDGMENTS TO THE FIRST EDITION

THE IDEA OF COMPILING a book such as this was not new to us. We had been toying with this thought many times in the past. However, by insisting on the need for such a book and by impulsively establishing contact with the publishers, Col. James T. McGuire, Superintendent of the Illinois State Police, gave us the necessary impetus to go ahead with our plan. To him goes our appreciation for his insight and understanding of the need for dissemination of experience in the pathology of trauma among law enforcement personnel to help ensure a better administration of justice.

Our thanks to all those who have contributed to this book with their knowledge and experience, and who have thereby helped us make this endeavor possible.

Finally, our sincere gratitude to Hannelore Schmidt-Orndorff for her able assistance with the editorial work. Her continuous drive and suggestions have helped immensely in the task of preparing the manuscript from its inception.

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W.U.S.  
R.S.F.



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“In fine, nothing is said now  
that has not been said before.”

TERENCE (185–159 B.C.)